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doctrine of Book I. That doctrine is that persuasion should be logical. But a large part of Book II. is a concession to the claims of the emotional proofs. In this elaborate if popular psychology of the emotions Aristotle recognizes more fully and more subtly than any of his successors the efficacy of the appeal to the sensibilities. It is therefore hardly exact to speak of "his neglect of whatever affects the sympathies or the aversions of an audience;" and it is tardy justice to add at the end of the chapter a half dozen lines calling attention to the chapters on anger, etc., "for the part which emotions occupy in the art of persuasion."

Nor is it exact to say that Aristotle "takes occasion to rank the art of expression side by side with the faculty of thought, logic;" for this assertion does not take into account that this "offshoot of logic," as he called it, was to Aristotle a somewhat contemptible science, trading in sophistry alone. To imply further that Aristotle elevates rhetoric "perhaps with an eye to Plato's slurs upon rhetoric" is surely less than half right; for Aristotle's rhetoric is little more than a cold scientific elaboration of that "false opposite" of logic to which Plato objected; the stamp of Plato's own sarcasm is on all the book. This looseness in the treatment of Aristotle makes it impossible for the reader to understand the theories of Hermagoras—whose cardinal doctrine of the *issue* our author ignores—or those of Dionysius, or Cicero, or Quintilian.

These facts necessitate a cautious use of a small part of the book. But no such criticism is possible of the swift, graphic, interesting account of mediæval and modern oratory.

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*The Essentials of Arithmetic, Book II., for upper grades.* By GORDON A. SOUTHWORTH, Leach, Shewell and Sanborn, 1895.

THIS, the second part of the author's two-book course, is one of the most noteworthy elementary text-books of recent years. It is one of the very few works that have successfully broken from tradition. It is a rare event when a text-book writer attempts to be modern and does not fly off on a tangent, riding as it were a winged hobby until he is far away from this practical earth. Mr. Southworth is the hundredth man, yea, even the thousandth.

This is high praise. What is there in "The Essentials of Arithmetic" that is so distinctive and at the same time so excellent as to deserve such an encomium?

In the first place the author has dared to attempt to make pupils think, actually think for themselves without telling them what they ought to think. Moreover he has succeeded in this respect as almost no writer on elementary arithmetic in America has ever succeeded. He has given us a model of heuristic teaching. The pupil is led up to his own definitions by brief, simple, logical questions; he is taken into confidence; instead of being told what a fractional unit is, he tells the teacher; instead of learning what a quintillion is, he answers the question, "Can you think of any use for billions, trillions, quadrillions, or larger numbers?" Instead of learning the text-book's directions for performing certain operations, the pupil, unconsciously guided, gives his own directions; instead of being told in what century 1900 belongs, he finds it out for himself; and so, in general, throughout the course he depends on himself in a way that will inspire him with confidence and with a love for the subject.

Futhermore the author has dared to insert the definitions where they belong, that is, after the concepts are entirely familiar, and to say, "For reference." Such pedagogy is as refreshing as it is unusual. Yielding to the mammon of unrighteousness he has put in some rules, but he has placed them where they will never be used, in an appendix, and has preceded them with this suggestive text, "A clear understanding of subjects and principles will make rules unnecessary."

Another venturesome idea has been carried out, and one which may militate against the sale of the book; the author has insisted that the teacher should also think, and should know something outside of the text-book. For example, two methods of performing an operation are given and the pupil is told to state which is the better, and why; no hint is given to teacher or pupil; each must think. The teacher is directed to ascertain the business custom on various points, in his locality, and to act accordingly, a revelation to those of us who had to learn the Vermont Rule years before we ever set foot in the Green Mountain State.

Still another feature which makes us love the book for the enemies it will make, is the introduction of the simple equation where it belongs. To that eloquent but decreasing number of teachers who have protested against introducing algebra into arithmetic (as if there were any divid-

ing line) this will seem a sacrilege ; but after all, is it not sound pedagogy, and are we not inevitably coming to it ? It lets in the light ; it clears up the mystery ; it makes psychology and logic, instead of the freaks of history, the factors in the arrangement of the course, and it insists that the making of an easy thing hard is not *per se* commendable. The equation is introduced in the fifth grade, where it seems to belong, and thereafter it becomes a powerful instrument throughout the course.

But there is one thing which everyone will commend, namely, the work in oral arithmetic. This is introduced skillfully, and progressively, and continuously from the first day to the last. It is too much to ask that a teacher should prepare all of the oral work for the four years of the grammar school, and yet it is difficult to arrange a book so that the pupils shall refer to it when reciting, and yet not write down the answers to the oral problems in advance. This book seems to supply the need with entire success.

In one other respect the book is remarkable. It is up to date. Those who have much to do with the examination of text-books as they appear will appreciate the truth of the statement that this feature is really remarkable. Here is a text-book which, under exchange, speaks of postal and express money-orders, perhaps the most common instruments of exchange known to the majority of people. And this is only one of a considerable number of features that come under the same category.

Besides introducing algebraic forms where they belong, the work introduces metrical geometry where it belongs. This is done in a natural manner and to the extent that is demanded in common life. Moreover the child is still required to keep to accurate arithmetical forms in his mensuration. It is a luxury to see a book that not only preaches  $2 \times 3$  sq. ft. instead of 2 ft.  $\times$  3 ft., but also practices it.

In the arrangement of the solutions the work is a model. It gives the numerical solution as a pupil is advised to arrange it ; it then gives the formal solution, in numbered or lettered steps, thus covering the logical analysis ; the teacher may call for either or both as the subject demands.

After such unusual praise it may be asked, " Has the book, then, no weak points ? " Was there ever a book without them ? Was there ever a book without some misprints, some questionable assertions, some things that would not please every critic ? This book has them ;

but they are few in number and are so much overshadowed by its excellencies that it would serve no good purpose to enter the limited field at this time, or to mar the pleasure of reviewing a book that is really superior, and that is destined to do a great deal to improve American education.

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*Elements of Geometry, Plane and Solid.* By JOHN MACNIE, A.M.  
Edited by Emerson C. White, American Book Co.

“WHAT reason for another geometry?” is the first thought when a new one appears, and too frequently the answer is: “No reason for this one.” But such is not the case with the new *Elements of Geometry* in White’s series. At least so it appears to one who has examined it rather critically and with the avowed intentions of discounting it wherever possible.

There is just now a decided inclination among active teachers of geometry to swing over to the extreme heuristic method, that is, to show the pupil little or nothing, in contrast with the plan of certain text-books in wide use, which tell him almost everything, and leave him no exercise of his own reason and constructive powers.

As a choice between these two extremes, the former is surely the better, and, if teachers were everywhere trained and experienced in this method of teaching, and if the time allotted to geometry in the schools could be extended sufficiently, then there would be no question about the treatment of this subject and the kind of text-book demanded. But, since neither of these conditions is fulfilled at the present, and since the necessary and sufficient guide-book for general use in heuristic teaching is yet to be written, therefore we welcome this text-book which seems to occupy legitimate ground between the two extremes. The book commends itself (1) in the successful way in which the pupil is taught how to reason, how to discover a method of proof, how to analyze a demonstration as it is given, how to gather up a series of results into one comprehensive statement; (2) in the remarkably appropriate sets of questions, problems, and theorems, which are so well graded, that the pupil will be stimulated by his own successes rather than discouraged with repeated failures, as is so often the case with poorly graded exercises; (3) in the arrangement of mat-